In the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (CURRENTLY AMENDED) A low noise block downconverter for use in a satellite broadcasting system receiver, said low noise block downconverter comprising:

a. a first low noise amplifier for providing an amplified k-band RF signal;

b. a local frequency oscillator for providing a local oscillator signal;

c. a high frequency diplexer for providing a diplexer output signal, said high frequency diplexer being electrically connected to said low noise amplifier, wherein ~~where~~ said high frequency diplexer further comprises at least a first diplexer input for receiving said amplified k-band RF signal, a second diplexer input for receiving said local oscillator signal, and a diplexer output for providing a diplexer output signal substantially equal to the sum of the amplified RF signal and the local oscillator signal; and

d. a downconverter for receiving said diplexer output signal, wherein said downconverter receives said diplexer output signal at a first downconverter node and a second downconverter node and provides an intermediate frequency output equal to the half-rectification of said diplexer signal received at said first diplexer node and said second diplexer signal received at said second diplexer node.

2. (ORIGINAL) A low noise block downconverter according to claim 1 wherein said high frequency diplexer comprises a resistive summing junction.

3. (ORIGINAL) A low noise block downconverter according to claim 1, wherein said high frequency diplexer comprises a distributed element frequency selective junction.

4. (ORIGINAL) A low noise block downconverter according to claim 1, wherein said high frequency diplexer comprises a lumped element frequency selective junction.

5. (ORIGINAL) A low noise block downconverter according to claim 1 wherein said downconverter comprises an integrated circuit chip.

6. (ORIGINAL) A low noise block downconverter according to claim 5 wherein said integrated circuit chip comprises at least a first diode and a second diode, wherein said first diode and said second diode form an anti-parallel diode pair, said anti-parallel diode pair being electrically connected to high frequency diplexer.

7. (ORIGINAL) A low noise block downcoverter according to claim 6 wherein said anti-parallel diode pair produces an intermediate frequency.

8. (ORIGINAL) A low noise block downconverter according to claim 7 wherein said local oscillator signal is from about 9.75 GHz to about 11.3 GHz.

9. (ORIGINAL) A low noise block downconverter according to claim 8, wherein said intermediate frequency is from about 950 MHz to about 2.15 GHz.

10. (ORIGINAL) A low noise block downconverter according to claim 9 wherein said integrated circuit chip is configured in a sub-harmonically pumped arrangement.

11. (CURRENTLY AMENDED) A k-band mixer for use in a low noise block downconverter comprising:

a. a high frequency diplexer for providing a diplexer output signal, said high frequency diplexer having at least a first diplexer input for receiving a k-band RF signal, a second diplexer input for receiving a local oscillator signal;

b. a local frequency oscillator for providing said local oscillator signal to said second diplexer input; and

c. a downconverter configured to downconvert said diplexer output signal to provide an intermediate frequency output equal to a half-rectification of said k-band RF signal and said local oscillator signal.

12. (ORIGINAL) A k-band mixer according to claim 11 wherein said high frequency diplexer comprises a resistive summer.

13. (CURRENTLY AMENDED) A k-band mixer according to claim ~~14~~ 13 wherein said high frequency diplexer comprises a lumped element selective junction.

14. (CURRENTLY AMENDED) A k-band mixer according to claim 13 wherein said high frequency diplexer comprises a distributed element frequency selective junction.

15. (ORIGINAL) A k-band mixer according to claim 14 wherein said downconverter comprises an integrated circuit chip, said integrated circuit chip having at least a first chip input, a second chip input and a chip output.

16. (ORIGINAL) A k-band mixer according to claim 15 wherein said integrated chip further comprises at least a first diode and a second diode, wherein said first diode and said second diode form an anti-parallel diode pair, said anti-parallel diode pair being electrically connected to said diplexer.

17. (ORIGINAL) A k-band frequency mixer according to claim 16 wherein said high frequency diplexer combines said k-band RF signal and said local oscillator signal to produce a combined high frequency signal, said combined high frequency signal being provided to said anti-parallel diode pair.

18. (ORIGINAL) A k-band frequency mixer according to claim 17 wherein said anti-parallel diode pair produces an intermediate frequency.

19. (ORIGINAL) A k-band frequency mixer according to claim 18 wherein said local oscillator signal is from about 9.75 GHz to about 11.3 GHz.

20. (ORIGINAL) A k-band mixer according to claim 19, wherein said intermediate frequency is from about 950 MHz to about 2.15 GHz.

21. (ORIGINAL) A k-band mixer according to claim 20, wherein said integrated circuit chip is configured in a sub-harmonically pumped arrangement.

22. (CURRENTLY AMENDED) A method for downconverting a k-band radio frequency, said method comprising:

combining a local oscillator frequency and a k-band RF frequency to produce a high frequency signal; and

inputting the high frequency signal into a downconverter to produce an intermediate frequency ~~of~~ from about 950 MHz to about 2.15 GHz, said downconverter comprising an integrated circuit chip containing an anti-parallel diode pair.

23. (CURRENTLY AMENDED) A method according to claim ~~23~~ 22 wherein the method further comprises the step of amplifying said intermediate frequency to a predetermined frequency.

Please add the following NEW claim:

24. (NEW) A low noise block downconverter for use in a satellite broadcasting system receiver, said low noise block downconverter comprising:

a. a first low noise amplifier for providing an amplified k-band RF signal;

b. a local frequency oscillator for providing a local oscillator signal;

c. a high frequency diplexer for providing a diplexer output signal, said high frequency diplexer being electrically connected to said low noise amplifier, wherein ~~where~~ said high frequency diplexer further comprises at least a first diplexer input for receiving said amplified k-band RF signal, a second diplexer input for receiving said local oscillator signal, and a diplexer output for providing a diplexer output signal substantially equal to the sum of the amplified RF signal and the local oscillator signal; and

d. an integrated circuit (IC) for receiving said diplexer output signal and providing an intermediate frequency output signal, said IC comprising a first IC input and a second IC input for receiving said diplexer output signal, said IC configured to half-rectify the diplexer output received at said first IC input and said second IC input.